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Notice of Allowability	Application No.	Applicant(s)	
	10/763,905	CHOI ET AL.	
	Examiner	Art Unit	
	Dac V. Ha	2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 01/23/04.
2. ☒ The allowed claim(s) is/are 1-54, renumbered as 1-54, respectively.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|---|--|
| <ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date _____ 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material | <ol style="list-style-type: none"> 5. <input type="checkbox"/> Notice of Informal Patent Application 6. <input type="checkbox"/> Interview Summary (PTO-413),
Paper No./Mail Date _____ 7. <input type="checkbox"/> Examiner's Amendment/Comment 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance 9. <input type="checkbox"/> Other _____ |
|---|--|

Dac V. Ha
Primary Examiner
Art Unit: 2611

Allowable Subject Matter

1. Claims 1-54 are allowed.
2. The following is a statement of reasons for the indication of allowable subject matter:

The present invention relates to method and apparatus for oversampling and phase tracking of received data. Prior art of record, taken individually or collectively, fails to fairly teach such method and apparatus in particular including “(a) generating, from the samples, relative phase data indicative of the phase of each of at least one of the sampling positions relative to the center of the data eye, for each of a number of tracking periods of the data signal; and (b) determining from the relative phase data which of the sampling positions is best aligned with the center of the data eye during each of at least some of the tracking periods, thereby identifying the sequence of best sampling positions, wherein step (b) includes the steps of: (c) applying a first low-pass filter to the relative phase data for at least one of the tracking periods in response to determining that the data signal's bit rate is in a first frequency range; and (d) applying one of a second low-pass filter and no low-pass filter to the relative phase data for at least another one of the tracking periods in response to determining that the data signal's bit rate is in a second frequency range, where the second frequency range is different than the first frequency range and the second low-pass filter is different than the first low-pass filter” in independent claim 1 and similarly in independent claims 8, 11, 14 (claims 2-7, 9-10, 12-13, 15-16 depend therefrom); and “sampling position control circuitry configured to generate, in response to the samples, sampling position control

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data indicative of a selected one of the sampling positions for each of a sequence of tracking periods of the data signal; and frequency zone detection logic configured to generate a frequency range signal indicative of a frequency range that contains the data signal's bit rate, wherein the sampling position control circuitry includes low-pass filter circuitry coupled to receive the frequency range signal and configured to operate in a first mode when the frequency range signal indicates that the bit rate exceeds a first threshold frequency, wherein the low-pass filter circuitry generates filtered data in the first mode, and the sampling position control circuitry is configured to generate the sampling position control data in response to the filtered data when the low-pass filter circuitry operates in the first mode" in independent claim 17 and similarly in independent claims 20, 29 (claims 18-19, 21-28, 30-37 depend therefrom) and collectively in independent claims 38, 41, 44, 46, 48, 52, 54 (claims 39-40, 42-43, 45, 47, 49-51, 53 depend therefrom). Thus, claims 1-54 are found to be novel and unobvious over prior art of record.

Conclusion

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sheen et al. (US 2006/0039513) discloses Clock And Data Recovery Systems And Methods.

Vallet et al. (US 7,180,966) discloses Transition Detection, Validation And Memorization Circuit.

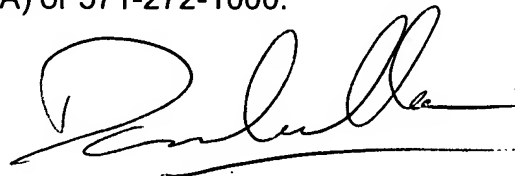
Jensen et al. (US 6,907,089) discloses Digital Demodulation And Application Thereof.

Dally (US 2006/0062327) discloses Method And Apparatus For Data Recovery.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dac V. Ha whose telephone number is 571-272-3040. The examiner can normally be reached on 5/4.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-3086. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Dac V. Ha', with a horizontal line underneath.

Dac V. Ha
Primary Examiner
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